

MODIS IOT Weekly Report

Mission Operations Days: 2000/044 to 2000/050

February 12, 2000 20:00:00 GMT to February 19, 2000 20:00:00 GMT

Terra Spacecraft and MODIS Instrument Status:

Terra (AM-1) is in Normal Mode

MODIS is in Science Mode

MODIS has no known Anomalies

Blackbody	On	Nominal
Calibration Electronics	On	Nominal
Control Processor	A On; B Off	Nominal
Door: Nadir	Unlatched, closed	Nominal
Space View	Unlatched, open	Nominal
Solar Diffuser	Unlatched, closed	Nominal
FDDI Formatter	A On	Nominal
FIFO Memory	Blocks 1 & 2 On	Nominal
Format Processor	A On	Nominal
PC FPA	On	Nominal
Power Supply: 1	On	Nominal
2	Off	Nominal
PV FPAs: VIS	On	Nominal
NIR	On	Nominal
SMIR	On	Nominal
LWIR	On	Nominal
Radiative Cooler:		
Outgas Heaters	Off	Nominal
LWIR FPA Heater	On	Nominal
SMIR FPA Heater	Off	Nominal
Scan Assembly	A On	Nominal
SDSM	Off	Nominal
SRCA	Off	Nominal
Survival Heaters: PS1	Enabled	Nominal
PS2	Enabled	Nominal
Timing Generator	A Off, B On	Nominal
Flight Software	Rev BD	Nominal
Inhibit Ids Set	None	Nominal
TMONs enabled	None	Nominal

This Week's Completed MODIS Activities:

Saturday, February 12th, 2000

043/20:43 - 150s orbit attainment burn executed nominally

043/20:43:27 - SSR Disabled due to thruster burn. Data loss begins here.

043/22:15:29 - SSR Re-enabled

Sunday, February 13th, 2000

044/15:00 - started controlling on the focal planes
044/16:51 - MODIS turn off
044/16:55 - PS2 Off
044/16:59:46 - MODIS turn on PS1, CPA
044/17:02:28 - MODIS transition to Science Mode, A-side
044/17:06:03 - Set formatter to night mode
044/18:18:59 - Begin SDSM Functional Test
044/18:27:35 - End SDSM Functional Test
044/18:30 - Clear inhibit Ids 31, 32, 33, 53, 58
044/20:43:27 – 21:01:15 ATC - - SDSM Screened double collect (OA16) / EDS
044/21:15:00 – 21:19:31 ATC - - PC Ecal (OA28)
044/21:20:00 – 21:22:31 ATC - - PV Ecal (OA27)
044/21:50:00 Real-time - - Set BB duty cycle to 100%
044/22:21:43 – 22:39:36 ATC - - SDSM Open double collect (OA15) / EDS

Monday, February 14th, 2000

045/15:42:15 - SSR buffer disabled. Data loss.
045/15:47:50 - SSR buffer reenabled
045/17:00 ATC - - OA26: BB On to 315K at 100% duty cycle
045/20:12:00 - 300s orbit attainment burn
045/22:22:10 - DC Restore (PV and PC) Off
045/22:24:40 - Sector Rotation to –3072
045/22:32:30 - Sector Rotation to 0
045/22:33:45 - DC Restore (PV and PC) On

Tuesday, February 15th, 2000

046/01:00:00 - BB Off
046/14:25:00 - Set BB to 33% duty cycle
046/15:52:55 – 16:20:00 - SRCA 1W Spatial (SRCA Functional)
046/17:00:00 - BB on to 315K at 33% duty cycle for 8 hours

Wednesday, February 16th, 2000

047/01:00 ATC - Blackbody turn off
047/14:30:00 – 15:03:33 ATC - - SRCA Full Radiometric
047/15:38 Real-time - - Turn on BB to 290.15K at 100% duty cycle
047/19:46 - 320s orbit attainment burn; data loss expected
047/21:55:41 Real-time - - Set BB Dcycle to 33%
047/21:56:44 Real-time - - Turn on EDS (quicklook)
047/21:58:00 Real-time - - SMIR Vdet Sweeps, Itwk = 79
047/22:07:59 Real-time - - SMIR Vdet Sweeps, Itwk = 90
047/22:15:10 Real-time - - SMIR Vdet Sweeps, Itwk = 100
047/22:22:13 Real-time - - SMIR Vdet Sweeps, Itwk = 110
047/22:29:19 Real-time - - Reset default values (Itwk = 79)
047/22:30:28 Real-time - - Turn off EDS (quicklook)
048/14:43:00 – 15:40:31 ATC - - SRCA Full Spatial
048/19:26:41 Real-time - - Turn on EDS (quicklook)
048/19:28:56 Real-time - - LWIR Vdet Sweeps, Itwk = 79

048/19:36:16 Real-time - - LWIR Vdet Sweeps, Itwk = 85

047/19:44:11 Real-time - - Turn off EDS (quicklook)

*Note that values for LWIR Vdet/Itwk were not set back to nominal between this set and the next set of sweeps.

Thursday, February 17th, 2000

048/22:41:55 Real-time - - Turn on EDS (quicklook)

048/22:42:57 Real-time - - LWIR Vdet Sweeps, Itwk = 90

048/22:50:17 Real-time - - LWIR Vdet Sweeps, Itwk = 95

048/22:58:01 Real-time - - Reset default values (Itwk = 79)

048/22:59:48 Real-time - - Turn off EDS (quicklook)

Friday, February 18th, 2000

049/13:09:03 – 14:00:46 ATC - - SRCA Full Spectral, 30W Part 1 (macro 18)

049/15:03:25 – 15:46:17 ATC - - SRCA Full Spectral, 30W Part 2 (macro 19)

049/16:25:31 – 17:16:43 ATC - - SRCA Full Spectral, 10W Part 1 (macro 20)

049/18:20:29 – 19:05:42 ATC - - SRCA Full Spectral, 10W Part 2 (macro 21)

Saturday, February 19th, 2000

050/17:16:34 Real-time - - Set SMIR FPA to B side

050/17:17:47 Real-time - - Turn on EDS (quicklook)

050/17:18:51 Real-time - - SMIR-B Vdet Sweeps, Itwk = 79

050/17:26:14 Real-time - - SMIR-B Vdet Sweeps, Itwk = 90

050/17:17:47 Real-time - - Turn off EDS (quicklook)

050/18:55:16 Real-time - - Turn on EDS (quicklook)

050/18:56:16 Real-time - - SMIR-B Vdet Sweeps, Itwk = 100

050/19:03:18 Real-time - - SMIR-B Vdet Sweeps, Itwk = 110

050/19:10:25 Real-time - - Reset SMIR-B default values, (Itwk = 79)

050/19:11:13 Real-time - - Turn off EDS (quicklook)

050/19:12:05 Real-time - - Set SMIR FPA back to A side

This Week's Scheduled MODIS Activities Not Completed:

None.

Upcoming MODIS Events:

Saturday, February 19, 2000

050/20:40 Real-time - - Set BB duty cycle to 100%

050/21:12:22 ATC - - OA16: SD/SDSM Screened

Sunday, February 20th, 2000

051/03:46:55 ATC - - OA16: SD/SDSM Screened

051/08:42:51 ATC - - OA16: SD/SDSM Screened

051/14:00:00 ATC - - Sector shift to -3072, BB at 315K (EDS ~ 5 minutes)

051/14:30 Real-time - - Set BB duty cycle to 33% and temp to 290K

051/15:17:25 ATC - - OA15: SD/SDSM Open
 051/20:13:27 ATC - - OA16: SD/SDSM Screened
 051/21:14 Real-time - - Turn PV-LW FPA off, Set SMIR FPA to B side
 051/21:16 Real-time - - Turn on EDS (quicklook)
 051/21:18 Real-time - - SMIR-B Vdet Sweeps, Itwk = 79
 051/21:26 Real-time - - SMIR-B Vdet Sweeps, Itwk = 90
 051/21:23 Real-time - - SMIR-B Vdet Sweeps, Itwk = 100
 051/21:30 Real-time - - SMIR-B Vdet Sweeps, Itwk = 110
 051/21:37 Real-time - - Turn off EDS (quicklook)
 051/23:00 Real-time - - Turn on EDS (quicklook)
 051/23:02 Real-time - - Reset SMIR-B default values, (Itwk = 79)
 051/23:10 Real-time - - Turn off EDS (quicklook)
 051/23:12 Real-time - - Turn PV-LW FPA back to On, Set SMIR FPA to A side

Monday, February 21st, 2000

052/02:48:27 ATC - - OA16: SD/SDSM Screened
 052/09:23:27 ATC - - OA15: SD/SDSM Open
 052/10:00 Bit Flip Investigation begins, MODIS OBC Activities suspended.
 052/10:18 Real-time - - Enable Formatter Test Data Packets (Bit-Flip Investigation)
 052/10:45 Real-time - - Disable Formatter Test Data Packets (Bit-Flip Investigation)
 052/12:12 ATC - - Formatter Night -> Day -> Night -> Day -> Night (6 minutes)
 (Bit-Flip Investigation)

Tuesday, February 22nd, 2000

053/01:00 Bit Flip Investigation ends, MODIS OBC Activities resumed.
 053/03:26:32 ATC - - OA16: SD/SDSM Screened, double collection duration
 053/08:22:47 ATC - - OA16: SD/SDSM Screened, double collection duration
 (Sector shift to -3072 and EDS ~18 minutes)
 053/13:19:02 ATC - - OA15: SD/SDSM Open, double collection duration
 053/?? Real-time - - Gain table load
 053/?? Real-time - - Ecal Sweeps
 053/?? Real-time - - Ecal Sweeps
 053/18:15:17 ATC - - OA16: SD/SDSM Screened, double collection duration
 053/23:11:39 ATC - - OA16: SD/SDSM Screened, double collection duration

Wednesday, February 23rd, 2000

054/04:08:13 ATC - - OA15: SD/SDSM Open, double collection duration
 054/09:04:47 ATC - - OA16: SD/SDSM Screened, double collection duration
 054/14:01:21 ATC - - OA16: SD/SDSM Screened, double collection duration
 054/18:57:55 ATC - - OA15: SD/SDSM Open, double collection duration

Thursday, February 24th, 2000

Friday, February 25th, 2000

056/?? Real-time - - Open Nadir Aperture Door (Earth View Data!!)
 056/?? Real-time - - Dump door table

MODIS Anomalies:

There have been two yellow high limits for MOD_VR_PVNIR_RP11V39. SBRS has been notified.

General Instrument Comments:

MODIS is in Science Mode on the A-side with the SVD open. The transition from the B-side to the A-side went well. The functional checkout of the SDSM was nominal. (And there was much rejoicing, again!)

MODIS is in Science Mode on the A-side with the SVD open and BB stable at 290.4K.

The functional checkouts to date:

The functional checkout of the SRCA went nominally. The one-watt lamp, source wheel, SIS heater and IR source all reacted as expected.

The SRCA's Spatial, Spectral and Radiometric tests all appear to have gone off without a hitch.

All mechanisms and lamps (non-pristine) have been exercised except the Nadir Aperture Door!

MODIS Telemetry Trends:

Telemetry is nominal.

Non-MODIS Significant Events:

Investigation into bit flips continues. No MODIS OBC activities will be planned for primary shift on Monday, February 21st to support bit flip investigation. MODIS has been asked to perform 27 minute Day Rate of Formatter Test Packets and a rapid (4 transitions with 2 minute separations) Formatter Day/Night Rate Toggling. Data will be dumped during this data via various methods. MODIS has been asked to evaluate these varieties of data to determine if bit flips are present in the science data.

Burn Status:

Due to slightly greater than expected overall performance of the previous burns as a result, FDS "had to move and resize burns 7 and 8 in order to achieve the ground track and frozen orbit requirements." (Note the day change of the final burn in particular to Thursday, February, 23.)

Burn | Start Time | End Time | Duration(sec)

1 | Feb 10 2000 21:15:43.030 | Feb 10 2000 21:16:43.030 | 60.000 (complete)

2 | Feb 12 2000 20:43:22.876 | Feb 12 2000 20:45:52.876 | 150.000 (complete)

3		Feb 14 2000 20:12:16.920		Feb 14 2000 20:17:16.920		300.000 (complete)
4		Feb 16 2000 19:45:32.361		Feb 16 2000 19:50:52.361		320.000 (complete)
5		Feb 18 2000 21:52:11.699		Feb 18 2000 21:57:31.699		320.000 (complete)
6		Feb 20 2000 19:03:07.853		Feb 20 2000 19:08:27.853		320.000
7		Feb 22 2000 18:00:-?:-?:--		Feb 22 2000 18:-?:-?:-?:--		280.000 *
8		Feb 23 2000 21:10:-?:-?:--		Feb 24 2000 21:-?:-?:-?:--		110.000 *

* The EXACT time of these burns has yet to be made available to the IOTs.

The last burn is intended as a “Trimming Burn” to be used to polish off the final orbital path.

During the burns, a short period of MODIS data loss occurred following the burn due to priority of Spacecraft vs. Instrument activities. This is not an anomaly, this is an operational agreement between the IOTs and FOT. The MODIS data losses occurred at:
043-20:43:27 – 043/22:15:29
049-22:45:29 – 049-23:26:01

Limited Life Item Status:

All limited life items are well within lifetime ranges. The precise statistics for each item have been received from LMMS/Valley Forge and will be incorporated next week.